

62 the weight ratio of said selectivity enhancer to said palladium is in the range of from about 0.1:1 to about 20:1; and

said palladium is present on the skin of said composition.

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63 58. (Thrice Amended) A process comprising contacting an olefin-containing fluid stream which comprises a highly unsaturated hydrocarbon, in the presence of hydrogen, with a composition under a condition sufficient to effect selective hydrogenation of said highly unsaturated hydrocarbon to a less unsaturated hydrocarbon wherein said composition consists essentially of (1) palladium, (2) silver, (3) an alkali metal or an alkali metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, and gallium, and (5) alumina;

said palladium, silver, selectivity enhancer and alkali metal or alkali metal-containing compound are each present in a sufficient amount to effect selective hydrogenation of said highly unsaturated hydrocarbon to a less saturated hydrocarbon; and

said palladium is present on the skin of said composition.

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#### REMARKS

Attached herewith is a "Petition for Revival of an Application for Patent Abandoned Unintentionally Under 37 CFR 1.137(b)". This Amendment accompanies the Petition for Revival and serves as one of the items required for having a grantable petition.

Independent claims 36, 52 and 58 have been amended to provide the further limitation requiring the palladium component of the catalyst system to be present on the skin of the catalyst. Support for this limitation may be found in the specification at page

8, lines 16-18; where, it is stated that the palladium can be present on the skin of the composition. The definition of "skin" may be found in the specification at page 9, lines 2-8.

This additional limitation of the independent claims 36, 52 and 58 should render moot all of the obviousness rejections advanced by the Examiner in the previous office action with the exception of the obviousness rejection of claims 54 and 67 over Cheung, et al. (U.S. 5,475,173) in view of Polanek, et al. (U.S. 5,227,553) in further view of Collins (U.S. 4,126,645). This rejection, however, is respectfully traversed. Reconsideration and withdrawal of the Examiner's rejection are respectfully requested in view of the following remarks.

It is respectfully suggested that the limitation requiring the palladium metal to be present in the skin of the catalyst composition in combination with the use of the transitional phrase "consisting essentially of", which has the effect of excluding additional material components from the catalyst composition, makes the claims now pending in the application patentably distinguishable over the references cited by the Examiner.

As noted earlier, the Collins patent only discloses the use of palladium deposited near the surface of the skin of an alumina support, and there is no suggestion that the combination of palladium on the skin of the catalyst composition with other components, such as an alkali metal compound and a selectivity enhancer, provides the beneficial effects noted by Applicants in their specification. Therefore, Applicants respectfully suggest that the process now claimed is patentable over the cited art, and, therefore, respectfully request withdrawal of the final rejection.

Concerning the double-patenting rejection of co-pending application 09/459,846 in view of the Lindlar, et al. (U.S. 3,715,404), it is respectfully requested that this rejection be held in abeyance until patentable subject matter is found among the claims of this application.

In view of the above amendments and remarks, it is respectfully requested that the rejection of the claims be withdrawn and the claims, as amended, be found allowable.

Respectfully submitted,

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6-26-02

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**CERTIFICATE OF FACSIMILE**

I hereby certify that this correspondence is being transmitted by fax to the Assistant Commissioner for Patents, Washington, D.C. 20231, at 703-872-9378, to the attention of Examiner Marian Knode on the date indicated below:

6-26-02

(Date)

Linda Sengvong

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09/196,347

## APPENDIX

### VERSION WITH THE MARKINGS TO SHOW CHANGES MADE

36. (Fourth Amended) A process comprising contacting a fluid with a catalyst composition wherein said fluid comprises highly unsaturated hydrocarbon; said composition consists essentially of (1) palladium, (2) silver, (3) alkali metal or an alkali metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and (5) an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof; [and] said palladium, selectivity enhancer, and alkali metal or alkali metal-containing compound are each present in a sufficient amount to effect a selective hydrogenation of said highly unsaturated hydrocarbon[.] ; and said palladium is present on the skin of said catalyst composition.

52. (Thrice Amended) A process comprising contacting a fluid with a composition wherein

said fluid comprises an olefin and a highly unsaturated hydrocarbon;

said composition consists essentially of (1) palladium, (2) silver, (3) an alkali metal or an alkali metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and (5) an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof;

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wherein the metal of said spinel is selected from the group consisting of zinc, magnesium, calcium beryllium, strontium, barium, radium, iron, manganese, zirconium, molybdenum, ruthenium, rhodium, cobalt, germanium, tin, and combinations of any two or more thereof;

the weight % of said palladium in said composition is in the range of from about 0.0001 to about 5%; [and]

the weight ratio of said selectivity enhancer to said palladium is in the range of from about 0.1:1 to about 20:1[.] ;and

said palladium is present on the skin of said composition.

58. (Thrice Amended) A process comprising contacting an olefin-containing fluid stream which comprises a highly unsaturated hydrocarbon, in the presence of hydrogen, with a composition under a condition sufficient to effect selective hydrogenation of said highly unsaturated hydrocarbon to a less unsaturated hydrocarbon wherein said composition consists essentially of (1) palladium, (2) silver, (3) an alkali metal or an alkali metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, and gallium, and (5) alumina; [and]

said palladium, silver, selectivity enhancer and alkali metal or alkali metal-containing compound are each present in a sufficient amount to effect selective hydrogenation of said highly unsaturated hydrocarbon to a less saturated hydrocarbon[.] ;  
and

said palladium is present on the skin of said composition.